



Tennessee Department of Environment and Conservation.
Division of Water Pollution Control
401 Church Street, 6th Floor L & C Annex, Nashville, TN 37243
(615) 532-0625
**CONCENTRATED ANIMAL FEEDING OPERATION (CAFO)
STATE OPERATING PERMIT (SOP) APPLICATION**

Type of permit you are requesting: ☐ SOPCD0000 (designed to discharge) ☒ SOPC00000 (no discharge) ☐ Unknown, please advise
Application type: ☐ New Permit ☒ Permit Reissuance ☐ Permit Modification
If this NOI is submitted for Permit Modification or Reissuance provide the existing permit tracking number: _____

OPERATION IDENTIFICATION

Operation Name: Smith Poultry County: Bradley
Operation Location: 6373 Bates Pike Latitude: 35° 05' 51" N
Physical Address: Clondula, TN 37322 Longitude: -84° 45' 51" W
Name and distance to nearest receiving water(s): Cane Creek
If any other State or Federal Water/Wastewater Permits have been obtained for this site, list those permit numbers: _____

Animal Type: ☒ Poultry ☐ Swine ☐ Dairy ☐ Beef ☐ Other _____
Number of Animals: 150,000 Number of Barns: 8 Name of Integrator: Pilgrim Prime
Type of Animal Waste Management: ☒ Dry ☐ Liquid ☐ Liquid, Closed System (i.e. covered tank, under barn pit, etc.)
(check all that apply)
Attach the NMP ☐ NMP Attached Attach the closure plan ☒ Closure Plan Attached Attach a topographic map ☒ Map Attached

PERMITTEE IDENTIFICATION

Official Contact (applicant): Edsel Smith Title or Position: Land Owner
Mailing Address: 6373 Bates Pike City: Clondula State: TN Zip: 37322 ☒ Correspondence ☒ Invoice
Phone number(s): 423-477-5145 E-mail: _____
Optional Contact: _____ Title or Position: _____
Address: _____ City: _____ State: _____ Zip: _____ ☐ Correspondence ☐ Invoice
Phone number(s): _____ E-mail: _____

APPLICATION CERTIFICATION AND SIGNATURE (must be signed in accordance with the requirements of Rule 1200-4-5-.05)

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and title, print or type

Signature

Date

**WPC Permit Section
RECEIVED**

OCT 28 2010

TN Division Of Water
Pollution Control

APP-100X

RDA 230c

COMPREHENSIVE NUTRIENT MANAGEMENT PLAN



Edsel Smith Poultry Farm

Prepared by: Cody D. Dobbs
United States Department of Agriculture
Natural Resources Conservation Service
Chattanooga TST Office
Chattanooga, TN

In cooperation with the
Bradley County Soil and Water Conservation District

Date Prepared: 10/10/2007

Hydrologic Unit Code: 06020002

Driving Directions:

From the Keith Street post office turn north onto Keith St. and go 1.5 miles and then turn right onto 25th St. From there go 5 miles until you see Hwy 411 and go east on it for 5.6 miles. Turn right onto Osment Rd and go 2 miles and then turn right onto Bates Pike. Go approximately 1.2 miles and farm will be on the left side of the road and to visible sight.

Facility Coordinates:

Latitude – 35° 05' 51" N

Longitude – 84° 45' 56" W

Location Map:

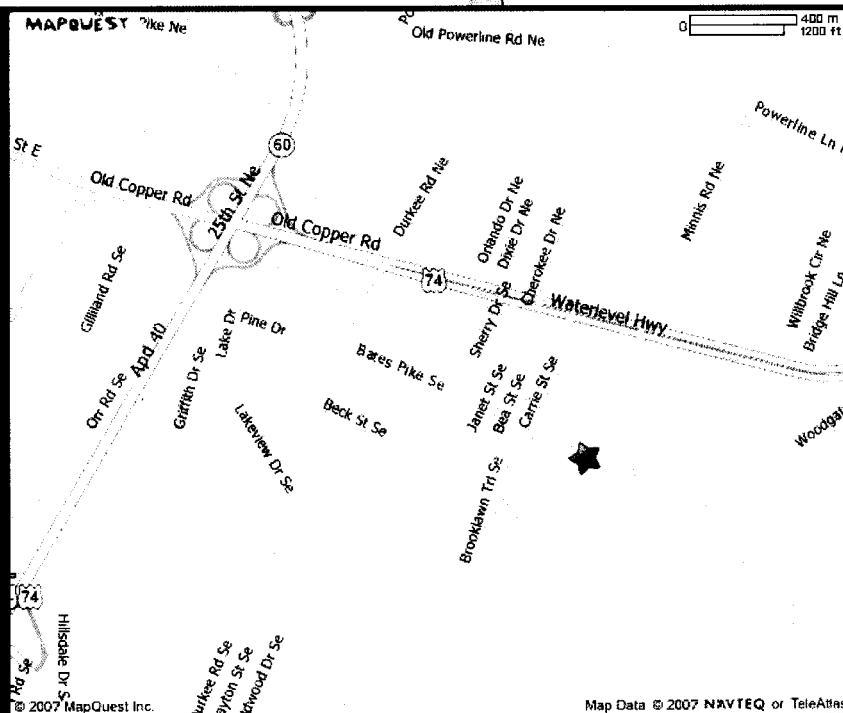


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1. CNMP SIGNATURE PAGE

Owner/Operator

Name: Edsel Smith	Phone: (423) 479-5145
Address: 6373 Bates Pike Cleveland, TN 37323	
Farm Number(s): 983	Tract(s): 1463

The following people have assisted with the development of the CNMP and certify that their element meets all applicable NRCS standards.

Litter and Wastewater Handling and Storage

Signature:	Date:
Name: Denise M. Watkins	
Title: NRCS Resource Civil Engineer	

Nutrient Management

Signature:	Date:
Name: Denise M. Watkins	
Title: NRCS Resource Civil Engineer	

Land Treatment Practices

Signature:	Date:
Name: Denise M. Watkins	
Title: NRCS Resource Civil Engineer	

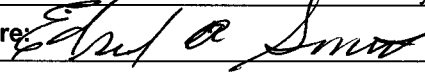
Certified Conservation Planner

As a Certified Conservation Planner, I certify that I have reviewed this plan for technical adequacy and that the elements of the CNMP are compatible, reasonable, and able to be implemented.

Signature:	Date:
Name: Kathy Daugherty	
Title: NRCS District Conservationist	

Owner/ Operator

As the owner/operator, I certify that as the decision-maker, I have been involved in the planning process and agree that the items listed in each element are needed. I understand that I am responsible for keeping all necessary records associated with the implementation of this CNMP. It is my intent to implement this CNMP in a timely manner as described in the plan.

Signature: 	Date: 10-27-10
-------------------------------------------------------------------------------------------------------	-----------------------

1.1. INTRODUCTION

This Comprehensive Nutrient Management Plan (CNMP) contains guidance on the proper utilization of litter on poultry farms. This document specifically addresses litter/compost handling and storage, nutrient management and land treatment practices; which when integrated; will provide the producer with an informed approach to managing the nutrient resources on his land.

Table 1: Resource Concerns

Soil Erosion Concerns	Water Quality Concerns	Other Concerns Addressed
Erosion around buildings and storage structures	Proper utilization of chicken litter	Regulations
		Neighbor Relations
		Aesthetics
		Air Odor and Air Movement

Erosion around buildings and storage structures is addressed in the Land Treatment Practices Section.

Proper utilization of chicken litter is addressed in the Litter and Mortality Management Section.

Mr. Smith hopes to continue the good relationship he has with his neighbors. He plans to make sure aesthetics around the operation are well maintained to prevent potential violations.

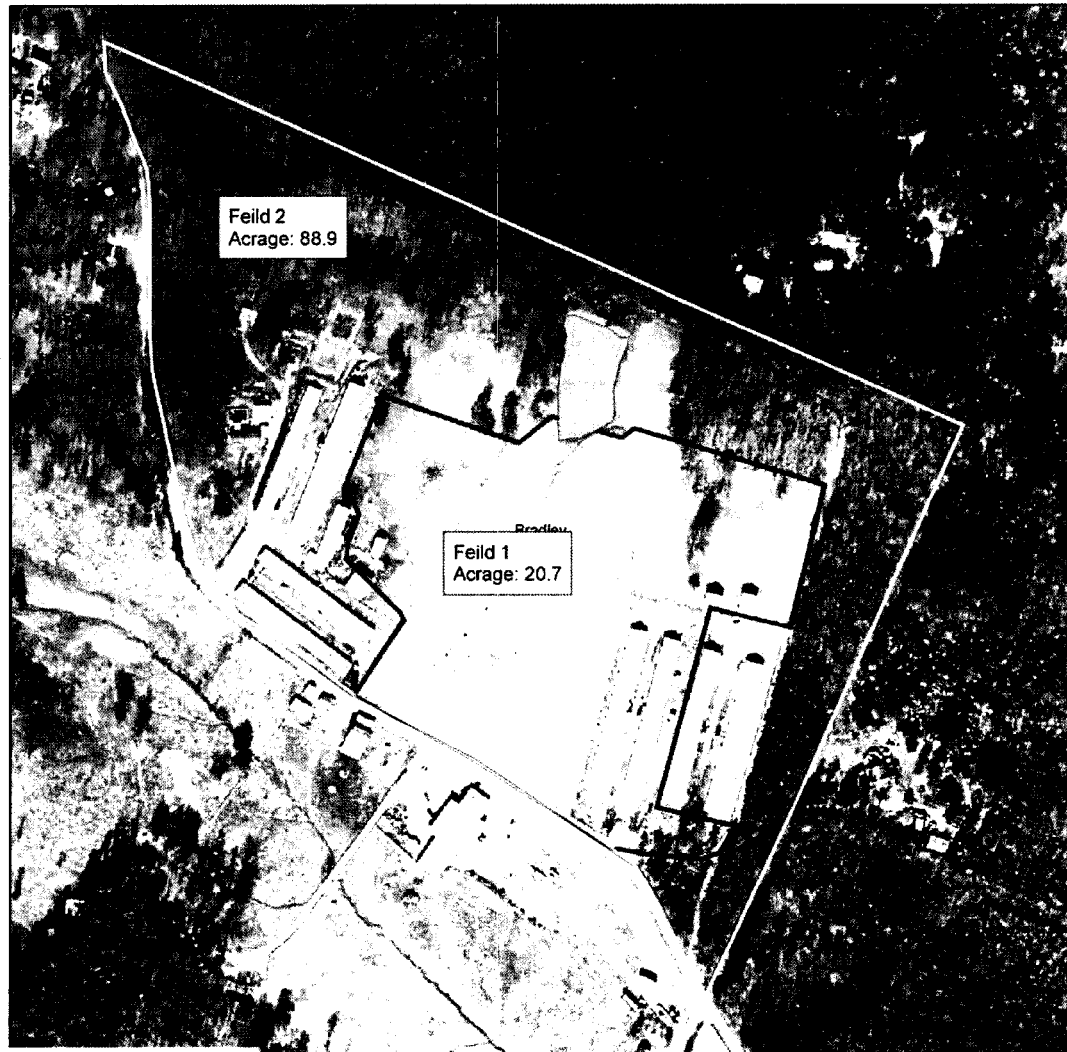
The Air Odor and Air Movement concerns are addressed in the Air Quality portion of the Operation and Maintenance section.

This operation will be considered a Class I (CAFO) and will need the appropriate state permits. It is the landowner's responsibility to insure that he is in compliance with all local, state and federal regulations. Some guidance on the regulatory process is provided in the Record Keeping Documentation section of this CNMP.

1.2. CURRENT SYSTEM DESCRIPTION

Edsel Smith operates eight (8) broiler poultry houses that are 40'x400' with a capacity of 159,000 birds per grow out. He has six (6) grow outs per year, producing, on average, over 954,000 birds annually for Goldkist Foods. Mr. Smith also has two non NRCS designed litter storage buildings, one twenty-five (25) X fifty (50), and one forty (40) X forty (40), and also an NRCS designed composter forty (40) X fifty (50), with four primary bins. Mr. Smith has about eighteen cows on property also.

Edsel Smith Bradley County Ortho Map



Legend

- Farm Boundary
- Field Boundary
- Pond
- Road

0 330 660 1,320 Feet



Map 1: CNMP Map

2. LITTER HANDLING AND MORTALITY MANAGEMENT

This element addresses the components and activities, existing and planned, associated with the production facility, litter storage and mortality management structures, and any area used to facilitate transfer of litter or mortalities.

2.1. PRODUCTION INFORMATION

Edsel Smith Poultry System C. Dobbs October 2, 2007 <i>(This sheet generates nutrient values and volumes for poultry litter)</i>	
Poultry Type	Broiler (2.1 avg. weight)
Number of Birds	159,000
Method of Dead Bird Disposal	Composting
Mortality Rate	4.0 %
Flocks per Year	6.0 flocks per year
Pounds of Litter Produced/yr	2,003,400 lbs/yr
Volume of Litter Produced/yr	66,780 cu.ft./yr
Tons of Litter Produced/yr	1002 tons/year
Tons of Litter sold or given away	
Tons of Litter Needed for Composting	
a. Dead Birds Produced	40 tons/year
b. Litter Needed	100 tons/year
Tons of Compost to Spread	120 tons/year
Tons of Litter/Compost to Spread	1022 tons/year
Method of Storage & Cleanout	Broiler (stockpiled)
Nutrients Produced	81,943 lbs of N per yr
	66,208 lbs of P ₂ O ₅ per yr
	59,261 lbs of K ₂ O per yr
Nutrient Value of Litter/Compost	80 lbs of N per ton
	65 lbs of P ₂ O ₅ per ton
	58 lbs of K ₂ O per ton

2.2. PROPOSED LITTER HANDLING AND STORAGE

The landowner does partial cleanouts (decakes) after each grow out and does a full clean out once each year. The litter and contaminated bedding (litter) from the broiler facility will be removed from the facility and then temporarily stored. A portion of the litter will be applied to the farm and the remaining litter will be removed from the farm. Mortality from the broiler operation will be composted in an existing composting facility. There are already two existing waste storage structures for litter and a composting facility; only the composter was designed by NRCS. Mr. Smith uses a house keeper to apply litter/compost to his fields, and the remaining litter will be hauled off the site by a third party vendor.

2.2.1. Litter Nutrient Content and Accounting

Table 2: Litter Nutrient Contents from Litter Analysis

Storage Name	% Liquid	Total N	NH4-N	Org -N	P205	K20	Units
Litter Sample	8.62	80.2	16.04	64.16	64.8	58	Lbs/Ton

This operation will utilize litter/compost on Field 1. A total of 38 tons of litter may be applied to the farm. The remaining litter/compost produced by this operation will be exported off the farm. Unless the operation significantly changes, the landowner will continue to annually export approximately 976 tons of litter/compost per year. Projected quantity and composition is in the table below.

Table 3: Litter Export Quantities and Nutrient Content

Export Date	Exported to	Quantity	Units	Total N	NH4-N	Org -N	P205	K20
5/1/2008	Jimmy Petty	300	Ton	80.2	16.04	64.16	64.8	58
9/1/2008	Jimmy Petty	338	Ton	80.2	16.04	64.16	64.8	58
1/1/2009	Jimmy Petty	338	Ton	80.2	16.04	64.16	64.8	58

2.2.2. Litter Testing

Litter shall be tested at least once per year for each storage facility. The results of the most recent test, or an historical average value for the operation, shall be provided to litter haulers and vendors. If compost is handled separately from litter, a separate analysis of the compost should be provided to any third party who receives the compost. Refer to Section 4 – Nutrient Management for more information on litter testing.

2.3. MORTALITY MANAGEMENT

Dead animals will be disposed of according to state and local laws and in a way that does not adversely affect ground water or create public health concern. All mortalities will be composted. If the method of disposing of dead animals changes, the producer should notify the local USDA-NRCS offices.

2.3.1. Composting

For proper composting, correct proportions of carbon, nitrogen, moisture, and oxygen need to be present in the mix. Common carbon sources are sawdust or wheat straw. It is desirable because of its bulking ability, which allows entry of oxygen. Other carbon sources that could be used are peanut hulls, cottonseed hulls, sawdust, leaves, etc.

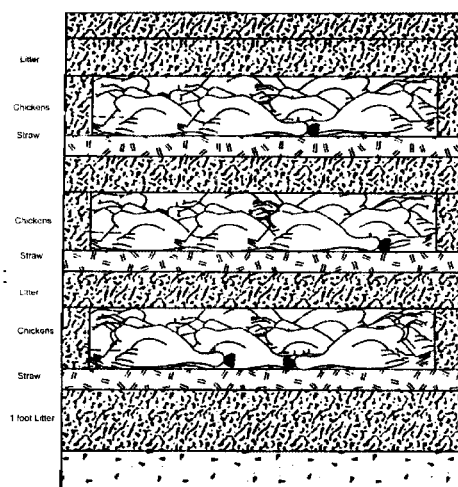
If lab testing of the litter or experience indicates that the carbon/nitrogen ratio is adequate (20 - 35:1 ratio), then litter alone should be sufficient for composting mortality as long as desirable bulking ability is achieved and moisture is properly managed. Moisture management is critical and must be maintained between 40 and 55 percent (40% -does not leave your hand moist when squeezed, 55% - if more than two drops drip from your hand the material is too moist).

RECIPE FOR COMPOSTING BROILER MORTALITY

INGREDIENT	VOLUME	WEIGHTS
Straw	1.0	0.10
Carcasses	1.0	1.0
Litter	1.5	1.2
Water	0.5	0.75

Compost layering procedure:

1. The first layer is one foot of litter.
2. A 4-6 inch layer of carbon amendment (sawdust is preferred) is added according to the recipe
3. A layer of carcasses is added. Carcasses shall be laid side-by-side and shall not be stacked on top of one another. Carcasses placed directly on dirt or concrete floors, or against bin walls will not compost properly.
4. Water is added (uniform spray).
5. Carcasses are covered with a 6-inch layer of litter.
6. Next layer of carcasses begun with carbon amendment and above steps repeated.
7. When composter is full, cap the 6-inch layer with four additional inches.



Maintain the moisture content at 40 to 55 percent during the composting process (40% - does not leave your hand moist when squeezed, 55% will allow about one drop of water to be released when squeezed, > 55% - if more than two drops drip from your hand the material is too moist, therefore add sawdust or dry carbon source).

Temperature is the primary indicator to determine if the composting process is working properly. A minimum temperature of 130° F shall be reached during the composting process. A temperature of 140° F is optimum; however, temperatures may range up to 160° F. If the minimum temperature is not reached, the resulting compost shall be incorporated immediately after land application or recomposted by turning and adding moisture as needed.

Compost managed at the required temperatures will favor destruction of any pathogens and weed seeds. Good carcass compost should heat up to the 140° range within a few days. Failure of the compost material to heat up properly normally results from two causes. First, the nitrogen source is inadequate (example wet or leached litter). A pound of commercial fertilizer spread over a carcass layer will usually solve this problem. Secondly, the compost fails when too much water has been added and the compost pile becomes anaerobic. An anaerobic compost bin is characterized by temperatures less than 120°, offensive odors, and black oozing compound flowing from the bottom of the compost bin. In this case a drier bulking / carbon amendment should be added to dry the mix. Then, the material should be remixed and composted.

It is possible, though unlikely, for the temperature to rise above the normal range and create conditions suitable for spontaneous combustion. If temperature rises above 170° F, the material should be removed from the bin and cooled, spread on the ground to a depth not to exceed six inches in an area away from buildings. Water should be added only if flames occur. If temperature falls significantly during the composting period and odors develop, or if material does not reach operating temperature, investigate piles for moisture content, porosity, and thoroughness of mixing.

After this first stage process, the material should be turned into a second bin and allowed to go through a second heat process. For larger birds, especially turkeys, a third turning may be necessary for complete degradation of the birds. Typically, the process can be considered "done" within 21-28 days from the time the compost is filled for broilers. For turkeys, the process usually requires about 60 days. After the heat process, curing period of one to three months is usually required before the material is stable. Compost may be land applied after the secondary or tertiary composting. If any animal parts are still in the mix, the material must be incorporated. If immediate application is not possible the material should be stored using the same requirements as that of stored litter in the Stacking Shed O&M statement.

Inspect compost structure at least twice annually when the structure is empty. Replace any broken or badly worn parts or hardware. Patch concrete floors and curbs as necessary to assure water tightness. Examine roof structures for structural integrity and leaks. Inspections shall be documented on the attached worksheet. The primary and secondary composters and the litter storage area should be protected from outside sources of water such as rain or surface runoff.

In order to assure desired operation of the composting facility, daily records should be kept during the first several compost batches. This can be helpful in identifying certain problems that may occur.

2.3.2. Burial

Burial should only be used as a secondary method of mortality disposal or in catastrophic situations. NRCS personnel should be contacted to help in the selection of an appropriate disposal site. In general the following criteria will be used to select an appropriate disposal location:

- it is greater than 100 feet away from a private well
- it is greater than 200 feet away from a public well
- it is greater than 50 feet from an adjacent property line
- it is greater than 500 feet from a residence
- it is greater than 100 feet from a stream, lake, pond, wetland, or 100-year floodplain

The burial pit should be graded so that it does not impound water. Runoff from the pit should flow into a grass filter. Note: When adequate drainage is not provided, these pits or trenches fill with water and carcasses may actually float to the surface.

The water in the pit is very bacteria-laden and may be a hazard to both animal and human health. There is also high potential for ground water contamination from both bacteria and nutrients. Burial trenches and pits must have at least a 2.0-foot separation between the bottom of the trench and groundwater. The pits should also have a berm to divert rainfall and runoff from the site. The soil should be able to infiltrate any rainfall that falls directly into the pit. Vectors (dogs, rats, snakes, flies, etc.) are potential problems in a burial situation. The carcasses must be covered daily as to reduce vectors in and around the trench or pit. When a burial pit is full, the site shall be capped with a mound of soil so that precipitation is not allowed to collect in the closed pit. Soil shall cover the carcasses a minimum of 2 feet. The area shall be grassed as to prevent erosion. The burial area shall be monitored so that these conditions remain after settling of decomposing carcasses and capping material.

2.4. FEED MANAGEMENT

Feed management activities may be used to reduce the nutrient content of litter, which may result in less land being required to effectively utilize the litter. Feed management activities may be dealt with as a planning consideration and not as a requirement that addresses specific criteria; however, AFO owners/operators are encouraged to incorporate feed management as part of their nutrient management strategy. Specific information and recommendations should be obtained from Land Grant Universities, industry, the Agricultural Research Service, or professional societies such as the Federation of Animal Science Societies (FASS) or American Registry of Professional Animal Scientists (ARPAS), or other technically qualified entities. Specific feed management activities to address nutrient reduction in litter may include phase feeding, amino acid supplemented low crude protein diets, and the use of low phytin phosphorus grain and enzymes, such as phytase or other additives. Feed management can be an effective approach to addressing excess nutrient production and should be encouraged; however, it is also recognized that feed management may not be a viable or acceptable alternative for all AFOs. A professional animal nutritionist should be consulted before making any recommendations associated with feed ration adjustment. Goldkist will provide feed management. Any significant changes that would result in nutrient changes in the litter will require a re-evaluation of this plan (CNMP).

2.5. MANAGEMENT OF MEDICAL ANIMAL WASTE

This operation is managed so as not to generate animal medical waste. Any medical treatment provided onsite will be handled by veterinary personnel capable to dispose all medical waste created.

2.6. EMERGENCY ACTION PLAN

The emergency action plan will be implemented in the event that animal by-products from the operation are leaking, overflowing, running off site or are in imminent danger of doing so. The operator should not wait until litter reach surface water or leave the property to consider that there is a problem. This plan should be posted in an accessible location for all employees at the facility. The following are some action items you should take.

1. Threatening Natural Occurrences

Prevent or minimize damage caused by threatening natural occurrences, such as tornadoes or strong storms associated with approaching fronts - actions include:

- a. Do not spread litter on fields just prior to an approaching storm.
- b. Do not spread litter on fields that flood during high rainfall events.
- c. Notify State Veterinary Office - Animal Emergency Response Coordinator (See Table below) or Local Animal Emergency Response Coordinator for relocation of animals if needed.

2. **Personal injury**
 - a. Stop all other activities to deal with the emergency.
 - b. Call for help (See Table below).
3. **Catastrophic deaths – Disease Related**
 - a. Notify State Veterinary Office.
 - b. Limit exposure to other birds.
 - c. Prevent visitation by unnecessary people.
 - d. Dead animals should be moved into an approved transport vehicle or an approved storage area or bin.
 - e. Record date of catastrophic deaths, number of deaths, method and location of disposal.
4. **Catastrophic deaths – Disaster Related**
 - a. Notify State Veterinary Office - Animal Emergency Response Coordinator immediately. (See Table below)
 - b. Notify the integrator, Goldkist, or farm manager to remove useable animals.
 - c. Remove mortality from the barns/houses.
 - d. Dispose of mortality in the manner given in this CNMP for emergency dead animal disposal.
 - e. Record date of catastrophic deaths, number of deaths, method and location of disposal.
5. **Litter Removal**
 - a. Place litter in stacking structure if available. Do not stack old litter next to new or wet litter next to dry.
 - b. Cover any litter stacks for temporary storage with plastic and weight down the edges. Cut a 4" diameter hole in the top and cover the hole with screen wire.
6. **Fire**
 - a. Stop all other activities to deal with the emergency.
 - b. Try to extinguish the fire with the appropriately rated fire extinguishers.
 - c. If fire cannot be contained, call for help (See Table below.)
7. **Assess the extent of the spill and note any obvious damages.**
 - a. Did the by-product reach any surface waters?
 - b. Approximately how much was released and for what duration?
 - c. Any damage noted, such as employee injury, fish kills, or property damage?
 - d. Did the spill leave the property?
 - e. Did the spill have the potential to reach surface waters?
 - f. Could a future rain event cause the spill to reach surface waters?
 - g. Are potable water wells in danger (either on or off of the property)?
 - h. How much reached surface waters?
8. **Provide the following information when reporting an emergency.**
 - a. Your name and phone number.
 - b. Directions to the farm.
 - c. Description of emergency.
 - d. Estimate of the amounts, area covered, and distance traveled.
 - e. Has litter reached surface waters or major field drains?
 - f. Is there any obvious damage: employee injury, fish kill, or property damage?
 - g. What is currently in progress to contain situation?
9. **Implement procedures** as advised by TDEC and technical assistance agencies to rectify the damage, repair the system, and reassess the litter management plan to keep problems with release of litter from happening again.

10. Documentation. The following items shall be documented in writing and filed with the Emergency Action Plan for future reference and emergency response training.

- a. Date and time, location of spill, affected landowners.
- b. Affect of litter spill on any surface water body or potable water well.
- c. Approximately how much litter was released and for what duration.
- d. Amount of litter, if any, that left the farm property.
- e. Any damage, such as personal injury, fish kill, property damage.
- f. Cause of the spill.
- g. Procedure to handle the emergency.
- h. Clean up efforts.
- i. List of authorities called, those that responded, and the time it took for them to respond.
- j. Recommendations to prevent a reoccurrence.

2.7. CLOSURE PLAN

In the event of this operation closing, the land owner will take such measures as necessary to remove all animals and waste/litter/compost from the site. Any stockpiled litter will be land applied in accordance with NRCS standards and specifications. Damaged or disassembled facilities will be disposed of in a manner meeting local, state, and federal guidelines.

Table 4: Information and Important Phone Numbers for Emergency Response**Farm Information**

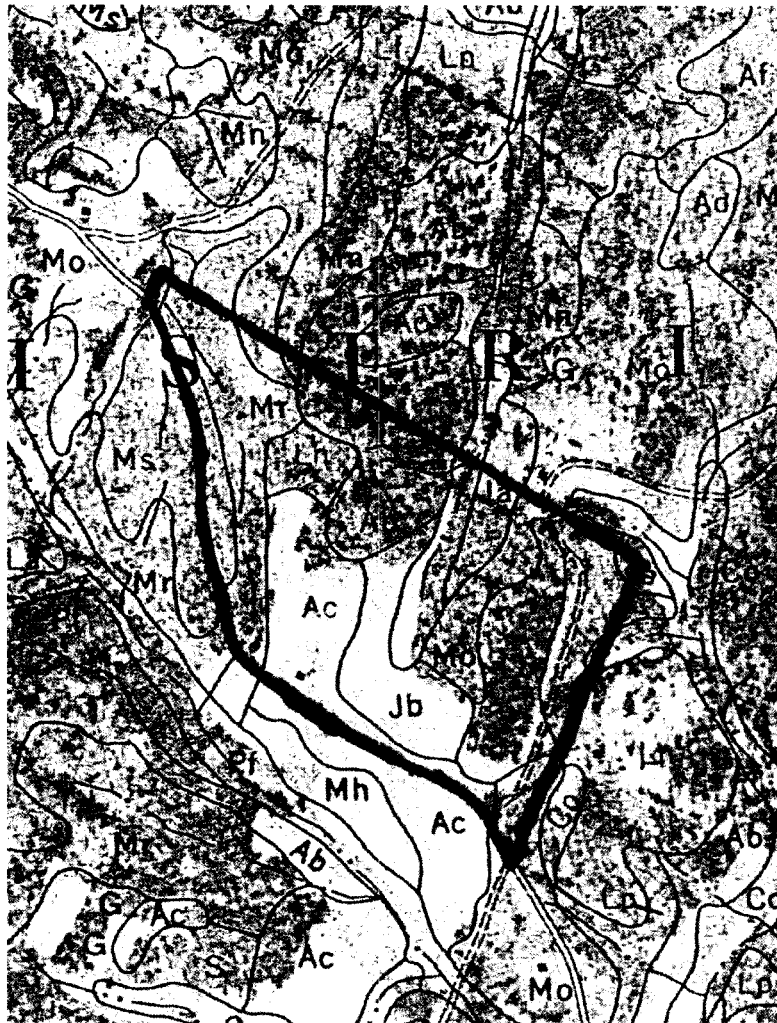
Farm Name	Edsel Smith
Address	6373 Bates Pike Cleveland, TN 37323
Farm Phone No.	(423) 479-5145
Permit No.	
Directions to Farm	From the Keith Street post office turn north onto Keith St. and go 1.5 miles and then turn right onto 25 th St. From there go 5 miles until you see Hwy 411 and go east on it for 5.6 miles. Turn right onto Osment Rd and go 2 miles and then turn right onto Bates Pike. Go approximately 1.2 miles and farm will be on the left side of the road and to visible sight.

Farm Contacts

	Name	Phone
Farm Owner	Edsel Smith	(423) 479-5145

Agency Contacts

Contact Agency	Person/Office Name	Phone	Emergency Number
TDEC	Dick Urban	(423) 634-5702	
State Veterinarian	Dr. Ronald B. Wilson	(615) 837-5120	(615) 837-5120
Fire Department	Fire Dept. Office	911	911
Sheriffs Office	Tim Gobble	(423) 728-7300	911
NRCS	NRCS County Office	(423) 472-5731	
UT Extension	Jennifer Balding	(423) 728-7001	
Integrator	Goldkist	(903) 434-1000	



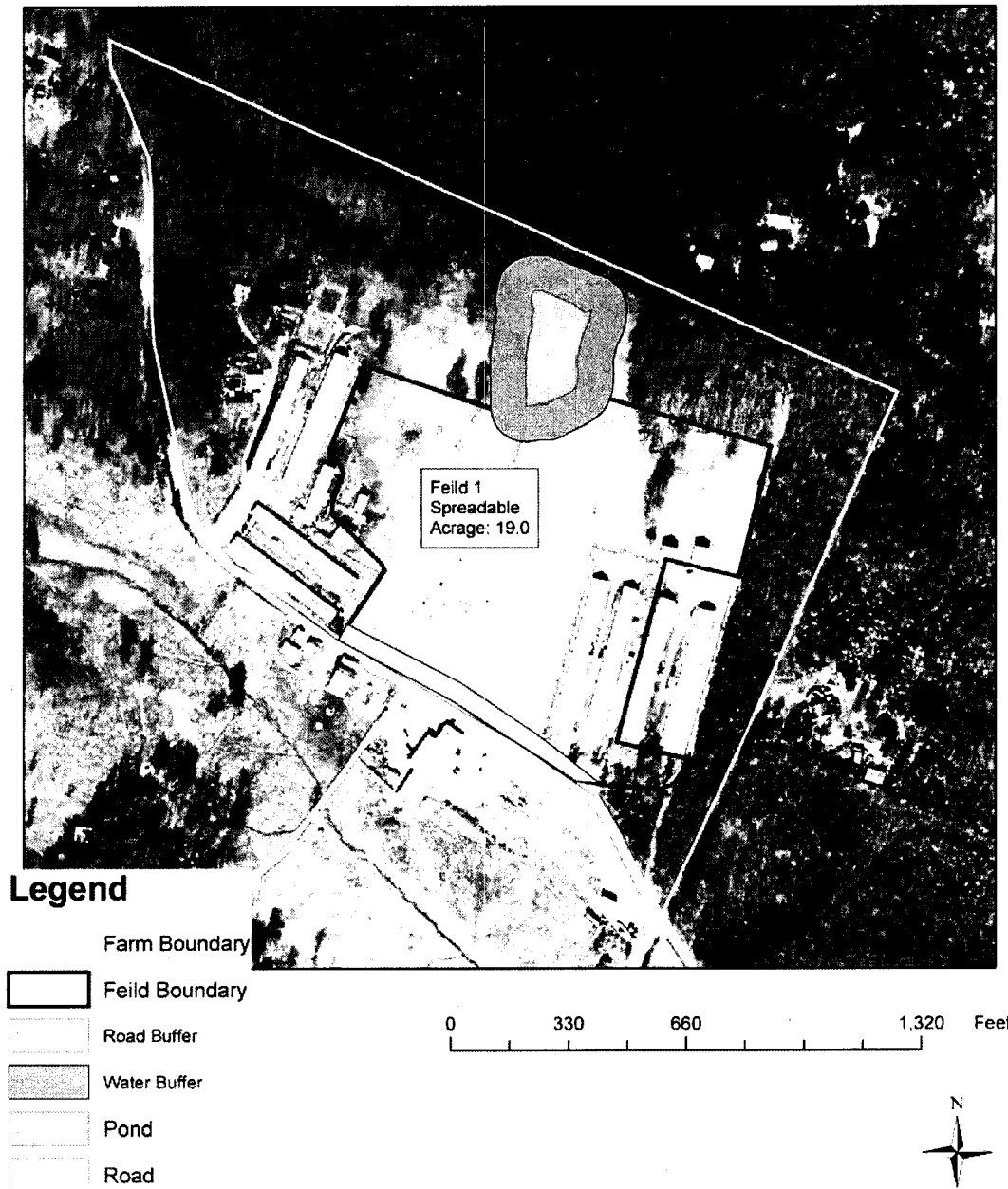
Map Unit Legend

Bradley County, Tennessee

Map symbol	Map unit name
Ab	Apison silt loam, eroded rolling phase
Ac	Apison silt loam, eroded undulating phase
Co	Cotaco silt loam
Ja	Jefferson loam, eroded rolling phase
Jb	Jefferson loam, eroded undulating phase
La	Leadvale silt loam, eroded rolling phase
Lb	Leadvale silt loam, eroded undulating phase
Lo	Litz shaly silt loam, eroded undulating phase
Ma	Melvin silt loam
Mo	Montevallo shaly silt loam, eroded rolling phase
Ms	Montevallo shaly silt loam, rolling phase
Mt	Mullins silt loam

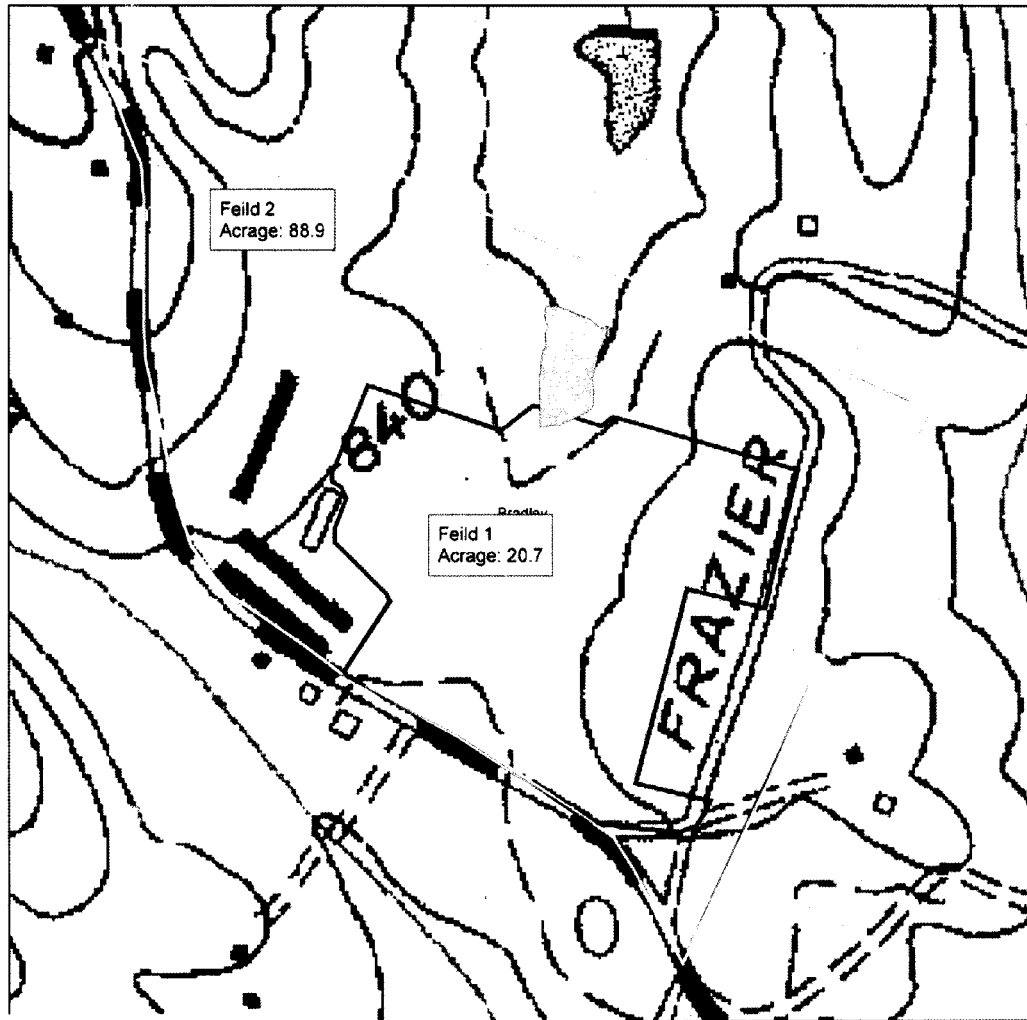
Map 2: Soils Map and Legend

Edsel Smith Bradley County Buffer Map



Map 3: Buffer Map

Edsel Smith Bradley County Topo Map



Legend

- Farm Boundary
- Field Boundary
- Pond
- Road

0 330 660 1,320 Feet



Map 4: Topographic Map

3. LAND AND TREATMENT PRACTICES

This element addresses evaluation and implementation of appropriate conservation practices on sites proposed for land application of litter and organic by-products from an Animal Feeding Operation. On fields where litter and organic by-products are applied as beneficial nutrients, it is essential that runoff and soil erosion be minimized to allow for plant uptake of these nutrients.

3.1. LAND TREATMENT PRACTICES AND EXPECTED RESULTS

Fields where nutrients are applied will be managed to soil loss tolerance and in accordance with a Conservation Plan developed under the direction of a Certified Conservation Planner. The soil loss on fields on this farm is within soil loss tolerance due to the land use being dedicated to forages. The following are planned practices for the CNMP for this farm:

Planned Land Treatment and Description	Fields	Date Planned
Forage harvest Management (511) On these fields, forages will be harvested at the appropriate growth stages to provide the desired forage quality and to maintain the forage stand.	1	2008
Prescribed Grazing (528) The vegetation on the pastures will be managed via controlled harvest with grazing animals.	1	2009

3.1.1. Land Treatment Practices

Necessary conservation practices have been, or will be, established and maintained on cropland where animal by-products are applied before the first application. All fields need a field border, residue management, as well as vegetative field strips established when next to a ditch, stream, or wetlands. Refer to the conservation plan for practices beyond those proscribed in the Phosphorus Risk Index. For further information concerning the applied or planned Land Treatment Practices, see the Conservation Plan for the Producer operation located in the closest NRCS Field Office.

3.1.2. Plan for Establishing Vegetation

Vegetation establishment is required around the buildings and storage structures to reduce soil erosion, this offsite nutrient and pathogen transport.

All disturbed areas including slopes of pads will be planted to permanent vegetation. If construction occurs during seasons not suited for planting warm or cool season grasses, temporary vegetation will be established until the recommended planting dates. Refer to NRCS practice standard 342, Critical Area Treatment, for guidance.

3.1.3. Construction Activity

All existing planned structures meet NRCS standards and specifications as shown in the As-Built Plans and specifications included in Section 12. Any new or existing component not shown in Section 12 shall be approved and stamped by the designing engineer who shall be an Engineer licensed in the State of Tennessee.

4. NUTRIENT MANAGEMENT

The goal of this section is to develop a nutrient budget for nitrogen, phosphorus, and potassium that includes all nutrient sources. From this nutrient budget, projections will be made concerning the sustainability of the plan for the entire crop sequence. In most cases, the nutrient budget is accurate for the first year only. If nutrients from sources not included in this plan are used in the first year, the nutrient budget will be revised to account for those inputs. In subsequent years considered in this plan, a nutrient budget will be developed using current soil analysis data; current manure analysis data; the actual crops to be used and their projected yields and nutrient needs and will account for nutrients from all sources. Guidance in developing a nutrient budget may be obtained from your NRCS Field Office or your University of Tennessee Cooperative Extension Service Agent. Land application procedures must be planned and implemented in a way that minimizes potential adverse impacts to the environment and public health.

4.1. SOIL TESTING

Soil testing should occur as recommended in Table 11. Soil nutrient levels should be monitored by soil testing to determine the requirement or buildup of phosphorus and potassium in the soil.

Table 5: Recommended Soil Testing Frequency

Land Use	Frequency (in years)
Continuous row crops (conventional)	2-3
Double-cropping system	2
Continuous No-till Corn, Cotton, Tobacco	1-2
Continuous No-till Soybeans (only)	3-5
Hay Systems	2
Pasture	3-5
High value Cash Crops (tobacco, vegetables)	annually
Lawns, Gardens	3-5
Any time a nutrient problem is suspected	Per event
At the beginning of a different cropping rotation	Per event

Soil samples are to be collected in accordance with The University of Tennessee extension service guidance (UT PB 1061) or standard industry practice if accepted by The University of Tennessee.

Soil testing is to be performed by laboratories that are accepted in one or more of the following programs:

1. State Certified Programs
2. The North American Proficiency Testing Program (Soil Science Society of America)
3. Other laboratories whose test results and interpretations of such test are within the currently accepted guidelines of The University of Tennessee

Soil profile sampling for nitrogen, Pre-Sidedress Nitrogen Test (PSNT) (UT SP427 for corn), Pre-Plant Soil Nitrate (PPSN) or soil surface sampling for phosphorus or acidity may be necessary in situations where there are special production or environmental concerns.

Soil amendments shall be applied to adjust pH to specific range of the crop for optimum utilization of nutrients as per soil test recommendations.

4.2. LITTER ANALYSIS

The producer shall be responsible for having representative samples of the manure collected and analyzed at least once per year. The amount of manure to be land applied so that the permitted application rate (normally the agronomic rate) is met will be determined using a rolling average of the previous analyses. The documentation must be maintained for at least five years, longer if it relates to a USDA program. These analyses are part of the required Record Keeping and are stored under the Record Keeping element of this CNMP.

When collecting a litter sample from a storage facility, the most important thing to keep in mind is to collect a sample representative of what will be land applied to the crop. If a livestock operation has more than one storage facility (e.g. two separate litter storage buildings) each unit should be sampled separately (e.g. the producer will need to collect two samples, one to represent each manure type, liquid sample and a solid sample).

4.2.1. Litter Sampling Method

The sample sent to the lab from a litter storage building should be a composite of several sub-samples. Sub-samples should be obtained from about 10 locations within the litter pile. The sample locations should vary by depth (from 1 ft deep to 3 inches from the bottom) and by position (from the front, back and sides). After collecting the sub-samples, the material should be mixed in one container to make a homogeneous composite sample. The composite sample sent to the lab should be about one pint. It should be sent in a well-sealed container. Sealable plastic bags work well for relatively dry material, wide mouthed plastic bottles are better for wetter material.

4.3. PHOSPHORUS INDEX (P INDEX)

When the soil test report recommends no application of P₂O₅ to the crop and a nitrogen-based application rate is needed, the Tennessee Phosphorus Index (P Index) used to assess further applications of P₂O₅. The P Index is an assessment tool used to evaluate the potential for P movement from the land application area. The following table shows the P Index point system and the generalized interpretation the points.

Total Points	Generalized Interpretation of P Index Points for the Site
<100	LOW potential for P movement from the field. If farming practices are maintained at the current level there is a low probability of an adverse impact to surface waters from P losses. Nitrogen-based nutrient management planning is satisfactory for this site. Soil P levels and P loss potential may increase in the future due to N based nutrient management.
100 - 200	MEDIUM potential for P movement from the field. The chance for adverse impact to surface waters exists. Nitrogen-based nutrient management planning may be satisfactory for this field when conservation measures are implemented to lessen the probability of P loss. Soil P levels and P loss potential may increase in the future due to N-based nutrient management.
201 - 300	HIGH potential for P movement from the field. The chance for adverse impact to surface waters is likely unless remedial action is taken. Soil and water conservation practices are necessary (if practical) to reduce the risk of P movement and water quality degradation. If risk cannot be reduced, then a P-based nutrient management plan will be implemented.
>300	VERY HIGH potential for P movement from the field and an adverse impact on surface waters. All necessary soil and water conservation practices, plus a P-based nutrient management plan must be put in place to avoid the potential for water quality degradation.

The P Index also requires certain setbacks, or buffers, be used on fields where manure will be applied to limit the potential affect of phosphorus on nearby water sources. The table below lists the buffer widths used in this plan.

Buffer Widths		
Object/Site	Situation	Buffer Width (ft)
Well	Located up-slope of application site.	150
Well	Located down-slope of application site provided conditions warrant application.	300
Waterbody/Stream ¹	Predominate slope < 5% with good vegetation. ²	30
Waterbody/Stream ¹	Predominate slope 5- 8% with good vegetation. ²	50
Waterbody/Stream ¹	Poor vegetative cover or Predominate slope > 8% ²	100
Waterbody/Stream ¹	Cultivated land, low erosion.	30
Public Road	Irrigated wastewater.	50
Public Road	Solid applied with spreader truck.	50
Dwelling	Other than producer.	300
Public Use Area	All.	300
Property Line	Located down-slope of application site.	30

Notes:

- ¹ Water bodies include pond, lake, wetland, or sinkhole. "Open" sinkholes should be protected the same as a well. Where sinkholes are not "open," a buffer should be established in the flat area around the rim of the basin.
- ² Good vegetation refers to a well-managed, dense stand that is not overgrazed.

Table 6: Tennessee Phosphorus Index Risk Rating Report

Operation Name: Edsel Smith																	
Tennessee Phosphorus Index Risk Rating Report																	
Phosphorus Transport Characteristics																	
Phosphorus Source Characteristics							Erosion Potential				Control Nutrient						
Tract Number	Field Number	Field Name	Soil Test P	P2O5 Appl Rate (lbs/ac)	P2O5 Applied As	Appl Timing	Appl Method	Hydrologic Soil Group	Perm. Vegetative Buffer Width	Non-App. Width from Surface Water	Slope (%)	Cover	Texture	Length of Horizontal slope	Site Vulnerability	PI Rating Value	Control Nutrient
1463	1	1	VH	133	2	3	4	B	>29	>29	2 - 5	3	4	150	Medium	199.8	N
<u>SoilTest P / Site Vulnerability</u> L = Low M = Medium H = High VH = Very High																	
<u>P2O5 Applied As</u> 1 = 0.20 applied as commercial fertilizer 2 = 0.10 applied as manure, litter, or biosolids 3 = 0.05 applied as alum to poultry litter @ 100 lbs per 1000 sq. ft. rate 4 = 0.02 applied as alum to poultry litter @ 200 lbs per 1000 sq. ft. rate																	
<u>Application Timing</u> 1 = June - Sept. 2 = April, May, Oct, Mar or Nov. w/winter cover 3 = March or Nov. w/o winter cover, Feb w/ winter cover 4 = Dec, Jan, Feb																	
<u>Application Method</u> 1 = Injected 2 = Incorporated within 5 days of application 3 = Incorporated more than 5 days after application 4 = Surface applied (no incorporation)																	
<u>Cover</u> 1 = Bare soil or conventional tillage 2 = No-till row-crops with light to medium residue 3 = Pasture/Hay or No-till row-crops with heavy residues 4 = No-till row-crops with heavy residues 5 = Pasture/Hay																	
<u>Texture</u> 1 = All Textures 2 = Silt loam (West TN) 3 = Silt loam 4 = other																	
<u>Controlling Nutrient</u> N = Nitrogen 3*P = 3*Phosphorus 2*P = 2*Phosphorus P = Phosphorus No Man. = No Manure123																	

4.4. LITTER APPLICATION PLAN

4.4.1. Land Requirements

There are many different ways of calculating these acreages. These values should be used only as a guide for the producer and the planner to estimate the best and worst case scenarios with regard to acreage requirements based upon the currently planned cropping sequence. Comparing each value between years will give one an idea of the nutrient requirements between/across the years due to the cropping sequence.

Table 7: Land Requirements ^{1 2 3}

Year	2008	2010				
Land Available	19	19				
Land Required (Based on N Recommendation)	775	904				
Excess or (Still Needed)	(756)	(885)				
Land Required (Based on P Removal)	1991	2347				
Excess or (Still Needed)	(1972)	(2328)				

Notes:

- ¹ N Recommendation calculation is based upon all N being available. Incorporating N losses would result in fewer acres being required.
- ² This calculation is representative of the exact ratio of crops you have in your plan. If this ratio differs, the numbers will differ and this report will need to be rerun.
- ³ The P removal calculation is based upon all allocation being made on PI-3 Phosphorus Index criteria.

4.4.2. Application Fields Summary

Available land for manure application includes the following tracts and fields listed in the Table below. These fields are not included in any other Nutrient Management Plan and no other manure or compost is being applied to these fields.

Table 8: Application Fields Summary

Tract No.	Field No.	Acreage	Buffered Acreage	Spreadable Acreage	Soil Test P (lb/ac)	PI Risk Rating	Controlling Nutrient
1463	1	20.7	1.7	19	120	MEDIUM	Nitrogen

4.5. CROP TYPES, REALISTIC YIELDS, SEQUENCES AND APPLICATION PERIODS

The following Table displays the crop type with their realistic yields based upon the historic data. The following crops, associated yields, and nutrient removal data are used to determine a nutrient budget based upon nutrient removal criteria.

Table 9: Crop Type, Yield Goals, and Removal Rates.

Tract No.	Field No.	Crop Name	Expected Yield	Nutrient Removal (lb/yield unit)		
				N	P	K
1463	1	Cool Season Grass Mix, hay	3.5 Tons	39.5	4.1	40
1463	1	Cool Season Grass Mix, pasture	3 Tons	39.5	4.1	40

The following Table displays the periods of the year when it is allowable to apply manure to these crops.

Table 10: Expected Application Periods by Crop*

Crop	Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Fescue Pasture/Hay			X	X	X	X			X	X	X	
Other Cool Season Mix Pasture/Hay			X	X	X	X			X	X	X	

4.6. PLANT TISSUE TEST RESULTS

If allocation decisions are based upon the results of such testing, the producer needs to document the rationale for changing the application rates and maintain all such documentation to support the soundness of such a decision. The results of tissue testing need to be included in the Record Keeping element of the CNMP and retained by the producer for five (5) years.

4.7. APPLICATION REQUIREMENTS

The Nutrient Allocation Schedule (below) shows allocation dates, application equipment used, and timing of incorporation. The schedule and nutrient budget indicate that there is not enough manure to adequately meet the needs of the pasture and hay fields on the farm. Commercial fertilizer will be needed to supplement the manure applied to fields. The allocation rate has been determined based on UT fertility recommendations.

4.8. NUTRIENT ALLOCATION SCHEDULE, AND BUDGETS (N, P2O5 AND K2O)

The following schedule displays all planned allocation events from all nutrient sources, the commercial fertilizer needed, the application rate displayed as the quantity used for that particular event, and all planned nutrient source applications. UT Soil Fertility Recommendations apply to this plan. These recommendations may be obtained from the local NRCS Field office or UT Extension Agent.

Table 11: Nutrient Allocation Schedule, and Budgets (N, P2O5 and K2O)

Tract No Field No Spread. Acres	Crop Name	Applic Rate (Tons/ Acre)	Total Tons Applied per Field	Allocation Date	Recommended (lb/ac)			Preallocation Credits (lb/ac)			Manure (lb/ac)			Balance (lb/ac)			Comm. Fert. Needed (lb/ac)		
					N	P2O5	K2O	N	P2O5	K2O	N	P2O5	K2O	N	P2O5	K2O	N	P2O5	K2O
1463	Cool Season Grass Mix, hay	3.5	67	8/15/2008	105	0	0	0	0	0	140	194	174	35	194	174	0	0	0
1	Cool Season Grass Mix, pasture	3	57	2/15/2010	90	0	0	18	5	25	93	130	116	21	135	141	0	0	0
19				Totals:	195	0	0	18	5	25	233	324	290	56	329	315	0	0	0

5. OPERATION AND MAINTENANCE

This section addresses the operation and maintenance of the litter management system, conservation practices, litter/compost testing, and equipment calibration. Operation and maintenance of structural, non-structural, and land treatment measures requires effort and expenditures throughout the life of the practice to maintain safe conditions and assure proper functioning. Operation includes the administration, management, and performance of non-maintenance actions needed to keep a completed practice safe and functioning as planned. Maintenance includes work to prevent deterioration of practices, repairing damage, or replacement of the practice if one or more components fail.

5.1. ITEM SPECIFIC OPERATION AND MAINTENANCE

5.1.1. Litter Storage Operation and Maintenance Items

Necessary operation and maintenance items for this practice include:

- a) Keep litter dry; wetting litter will not prevent a fire; just the opposite may happen. Protect litter from blowing rain.
- b) Store caked litter in a separate pile from dry litter.
- c) Avoid compacting moist or dry litter.
- d) Stack litter no more than 5 feet high.
- e) Keep moist litter uncovered. Let litter piles vent naturally.
- f) Allow new litter to dry completely before layering it on top of old litter.
- g) Stack litter away from wooden walls or structural support posts.
- h) Frequently monitor temperatures at various locations within the pile, and remove any materials that have temperatures greater than 180 °F. If temperatures exceed 190 °F, or if the material is smoldering, notify the local fire department and get instructions for removing the material from the building. Use extreme caution: A smoldering pile can burst into flame when exposed to air.
- i) Store expensive equipment out of the litter storage structure.

5.1.2. Composter Operation and Maintenance Items

Necessary operation and maintenance items for this practice include:

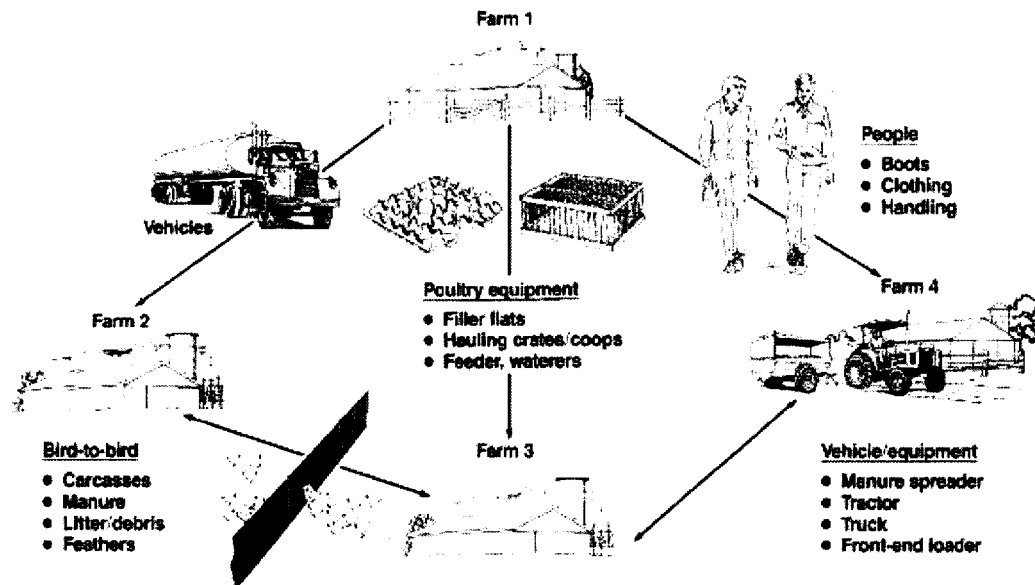
- a) Inspect facility regularly and when the facility is empty. Replace deteriorated wooden materials or hardware. Patch concrete floors and curbs as necessary to assure water tightness.
- b) Roof structures should be examined for structural integrity and repaired as needed. Exposed metal components should be inspected for corrosion. Corroded metal should be wire brushed and painted as necessary.
- c) Closely monitor temperatures above 165 °F. Take action immediately to cool piles that have reached temperatures above 185 °F
- d) Compost should not be stored with dry manure.
- e) Flies, rodents, and other pests are seldom a problem with properly managed composter units. The solid structure of the bins, especially the concrete slab, discourages ground level pests and scavengers from raiding the bins. Most insect larvae are killed at 115 F., a temperature lower than that achieved during efficient composting. At certain times of the year, some flies may be observed on the bin walls. These may be controlled with an insecticide.
- f) Good management practices such as placing the carcasses 6 inches away from the sidewalls, monitoring the temperature to be sure that proper levels are reached, and

completing the secondary stage of composting will go far in ensuring pathogen destruction throughout the mixture.

- g) The system is not designed for catastrophic losses resulting from excessive heat, collapse of buildings, loss from disease, etc.
- h) In the event of Catastrophic deaths – disease related, perform the following:
 - Notify State Veterinary Office.
 - Limit exposure to other birds.
 - Prevent visitation by unnecessary people.
 - Dead animals should be moved into an approved transport vehicle or an approved storage area or bin.
 - Record date of catastrophic deaths, number of deaths, method and location of disposal.
- j) In the event of catastrophic deaths – disaster related, perform the following:
 - Notify State Veterinary Office - Animal Emergency Response Coordinator immediately.
 - Notify the integrator or farm manager to remove useable animals.
 - Remove mortality from the barns/houses and dispose of mortality in accordance with an appropriate plan.
 - Record date of catastrophic deaths, number of deaths, method and location of disposal.

5.1.3. Bio Security

How Diseases Spread



Steps to Take to Avoid Disease Spread

To reduce the risk of introducing disease into a flock, maintain a bio security barrier (physical barrier, personal hygiene, and equipment sanitation) between wildlife, poultry facilities, other commercial avian facilities, and pet birds. Some examples of good bio security practices include:

1. Permit only essential workers and vehicles on the premises.
2. Provide clean clothing and a disinfection procedure for employees and visitors.
3. Clean and disinfect vehicles at the farm entrance.
4. Avoid visiting other avian facilities.
5. Do not keep pet birds.
6. Protect the flock from exposure to wild birds.
7. Control movement associated with the disposal of bird carcasses, litter, and manure.
8. Quarantine new additions to the flock. Never allow people or material to move from the quarantined birds to the flock.
9. Report signs of disease to your veterinarian.

5.1.4. Air Quality

Odor and Pathogen Management

It may not be practical or feasible to eliminate all odor emissions from the operation, but it is possible to manage or mitigate the odor. Some variables that effect odor are:

Type of operation	Building design
Ventilation method	Animal numbers
Animal diets	Manure treatment system
Season	Topography
Management skill or effort	

a. Animal Cleanliness

- Clean, dry, and healthy animals are less odorous. Dirty, manure-covered animals promote accelerated bacterial growth and the production of odorous gases.
- Animal stress can also be correlated to an increase in odor production. Ventilation and environmental controls for the buildings must be properly designed and maintained to keep the animals healthy.

b. Minimize Dust

- It has been established that there is a correlation between dust and odor emission. Dust particles adsorb and concentrate odorous compounds. As the dust particles are carried by the wind, so is the odor.
- Therefore, minimizing dust will reduce odor. Most farm dust comes from feed, fecal matter and, in the case of poultry, from feathers and litter. Dust also comes from animal skin, insects, and other sources.
- Buildings should be cleaned of all dust between batches of animals (including fans, shutters, and screens).

c. Waste Storage Facility - to reduce emissions of greenhouse gases, ammonia, volatile organic compounds, and odor:

- Consider alternatives and additional practices including covered anaerobic digesters (365), and composting facilities (317).
- Adjusting pH below 7 may reduce ammonia emissions from the waste storage facility but may increase odor when waste is surface applied.
- Consideration should also be given to the separation of the solids from the waste mixture. This will dilute the liquid waste product being treated in the lagoon and cause less odor. The solid separated material can be composted and sold or land applied.

d. Animal diets can also be manipulated to produce less waste and a less odorous waste.

e. Proper Disposal of Mortality - Normal mortality for the animal feeding operation *must* be properly handled for both odor control and biological security of the operation. Composting, incineration, and rendering are acceptable methods for mortality disposal.

f. Good Fly and Rodent Control Programs - These programs must be a continuous process on the farm. When feed and waste products are properly handled, these problems are minimized.

- g. **Utilize Trees** - While trees should not grow directly adjacent to facilities, wind breaks of trees correctly positioned near the facility not only create a visual barrier but can also provide a large filtration surface for dust and odorous compound removal. Trees can adsorb odorous compounds and create turbulence that enhances odor dispersion and dilution. Trees also can create a cooler microclimate around the facility, which can reduce odors.
- h. **Land application**
- Note wind direction and avoid spreading when the wind is blowing toward populated areas.
 - Avoid spreading on weekend/holidays when people are likely to be engaged in nearby outdoor and recreational activities.
 - Spread in the morning when air begins to warm and is rising, rather than in the afternoon.
 - Use available weather information to best advantage. Turbulent breezes will dissipate and dilute odors. Hot and humid weather tends to concentrate and intensify odors, particularly in the absence of breezes. Rain will remove the odor from the atmosphere.
 - Use natural vegetation barriers, such as woodlots or windbreaks, to help dissipate and filter odors.
 - Establish vegetated air filters in field border area by planting conifers and shrubs as windbreaks and visual screens between cropland and residential developments.

5.1.5. Pathogen Management

Many of the same conservation practices used to prevent nutrient movement from this animal feeding operation, such as runoff and erosion control are likely to minimize the movement of pathogens. Pathogenic organisms occur naturally in animal wastes. Exposure to some pathogens can cause illness to humans and animals, especially for immune-deficient populations.

6. RECORD KEEPING

It is important that records are kept to effectively document and demonstrate implementation activities associated with CNMPs. Documentation of management and implementation activities associated with a CNMP provides valuable benchmark information for the producer that can be used to adjust his/her CNMP to better meet production objectives. It is the responsibility of AFO owners/operators to maintain records that document the implementation of CNMPs.

The CNMP requires the producer to maintain these records for no less than 5 years. It is the producer's responsibility to ascertain the minimum time required for archiving the records listed below. In some cases, if certain USDA programs are in effect, the records may need to be kept as long as fifteen years.

Also, if the operation requires a permit, annual reporting may be necessary.

Records may be kept in a number of ways:

- Forms are available from the NRCS.
- Record forms may be obtained from University of Tennessee Agricultural Extension Service (Publication 1644)
- You may develop your own records system provided that all necessary information is included.

6.1. DOCUMENTATION

The Table below shows which of the CNMP reports are required by NRCS to document plan implementation. As applicable, records include:

Table 12: Records to be maintained by Producer Farms

Item	Report Details	Frequency	Documentation	Tennessee Records Kept For:	Required by TDEC?
Monthly Animal and Mortality Count and Calibration Record for Spreading Equipment		Monthly	Suggested format included ¹		Y
Soil test results	Soil Tests are to be conducted once per year for any field that has manure applied to it for consecutive years. Additionally, these collective reports will give the producer the means for tracking salts and heavy metal build-ups in the application fields. Any alternative sampling technique used to address specific crop requirements that lead to a change in the applied amounts should be documented on the Land Application Record Form as well as the test results maintained for five years. It is recommended that even if the additional testing yields no direct changes to the planned allocations, the test results should be maintained for the five-year period.	Annually If manure is applied for two years consecutively, annual soil testing is required.	Suggested format included ¹ Keep Test Reports	Two Most Recent Records 5 Years	Y Y
Results of Pre-Side Dress Nitrogen or Pre-Plant Soil Nitrate Testing		If analysis is used in allocation decisions these results should be maintained	Keep Test Reports		Y
Plant Tissue Testing Results		If analysis is used in allocation decisions these results should be maintained	Keep Test Reports	5 Years	Y
Manure Nutrient Analysis	A manure analysis must be completed annually, for each manure storage containment and prior to application. It is essential that the rate of manure allocated be revisited each year using the current analysis data to make those decisions. The Manure analysis should be used to assess the content proportions of each micro and macronutrient. One example of the effective use of the analysis would be to check the level of Magnesium against the level of Potassium. Should Magnesium be higher and the manure is applied to pasture land, the result could be detrimental to foraging livestock	Annual	Keep Test Reports	5 Years	Y
Events associated with manure storage and containment structures (e.g. manure transfer overflow events)	Dates of emptying, level before emptying, and level after emptying. Discharge or overflow events, level before and after event	Event Driven	Suggested format included ¹		Y
Spill Response	Activities associated with emergency spill response plan.	Event Driven	Keep Records of Actions Taken		Y

Item	Report Details	Frequency	Documentation	Tennessee Records Kept For:	Required by TDEC?
Containment Source or Type Form of Commercial Fertilizer	Use Events Associated w/ Storage Structures	Event Driven	Suggested format included ¹		Y
Crop records	Crops planted and planting/harvesting dates, by field.	Event Driven	Suggested format included ¹	5 Years	Y
Transfer of manure offsite to third parties	a. Manure nutrient content b. Amount of manure transferred c. Date of transfer d. Recipient of manure	Event Driven	Suggested format included ¹	5 Years	Y
Maintenance Records	Records of maintenance performed associated with operation and maintenance plans.	Scheduled Maintenance and Event Driven	Keep Records of Actions Taken		Y
Changes Made In CNMP	Some changes to the CNMP will not require a new plan to be created, other decisions will. Ask your local NRCS Field Office Personnel for information regarding changes to this CNMP.	Any actual operational or management variation from the original CNMP must be documented	Suggested format included ¹		Y
Animal Facility Management Plan		Duration of Plan Developed or When Changes are made to CNMP (See NRCS Field Office)	CNMP	As long as facility is in operation	Y
Reviews by third parties	Records associated with any reviews by NRCS, third-party consultants, or representatives of regulatory agencies: a. Dates of review b. Name of reviewer and purpose of the review c. Recommendations or follow-up requirements resulting from the review d. Actions taken as a result of the review	Scheduled	Suggested format included ¹	5 Years	Y
Land Application Event by Field	(Land Application Event & Nutrient Application Summary By Field) a. Application records for each application event, including (this also applies to commercial fertilizers that are applied to supplement manure or irrigation water, if applicable) b. Field(s) where manure or organic by-products are applied c. Amount applied per acre d. Time and date of application e. Weather conditions during nutrient application f. General soil moisture condition at time of application (i.e., saturated, wet, moist, dry) g. Application method and equipment used	Event Driven	Suggested format included ¹	5 Years	Y
Annual Report	TDEC and TDA require a report that summarizes the operational details of a permitted farm.	Annually	Suggested format included ¹	N/A	If permitted

¹ All suggested blank formats provided below.

MONTHLY ANIMAL AND MORTALITY COUNT

Year:

Production Phase:

Month	Animal Type	Animal Count	Animal Weight	Mortality Percentage (%)	Comments
January					
February					
March					
April					
May					
June					
July					
September					
October					
November					
December					

CROPS RECORD

Year:

[illegible]

CHANGES TO CNMP

[illegible]

WEEKLY INSPECTIONS

[illegible]

NUTRIENT APPLICATION SUMMARY BY FIELD

[illegible]

¹ Nutrient Source could be Irrigation Water, Starter Fertilizer, Fertilizer, or Manure.

² Weather conditions 24 hrs before, during, and 24 hours after application should be noted in comments box

ANNUAL REPORT

Operation Name:

Date Submitted:

1. Number and types of animals on site.	Types:	Number:	
2. Estimated amount of litter, litter, compost and/or process wastewater generated in the previous calendar year.	Amount:		
3. Estimated amount of litter, litter, compost and/or process wastewater transferred to a 3rd party in the previous calendar year.	Amount Transferred:		
4. Total number of acres for land application covered by the nutrient management plan.	Acres:		
5. Total number of acres under control of the landowner that were used for land application of litter, litter, compost and/or process wastewater in the previous calendar year.	Acres:		
6. Summary of all litter, litter and/or process wastewater discharges to waters of the state from the production area that have occurred in the previous calendar year, include date, time and approximate volume.	Date:	Time:	Volume:
7. The current version of the Comprehensive Nutrient Management Plan was developed and/or approved by a certified nutrient management planner.	Yes/No	Comments:	
<p>I Certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those person's directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.</p> <p>Signature: _____ Date: _____</p>			

Mail a completed form to the following agencies:

Tennessee Department of Environment and Conservation
Division of Water Pollution Control
6th Floor L&C Annex, 401 Church Street
Nashville, TN 37243
And
Tennessee Department of Agriculture
Ellington Agricultural Center
P.O. Box 40627
Nashville, TN 37204

LITTER ANALYSIS AND SOIL TEST REPORTS



Waters Agricultural Laboratories, Inc.

Manure/Sludge Analysis and Application Report

P.O. Box 382 • 257 Newton Highway • Camilla, Georgia 31731-0382 • phone: (229) 336-7216

Ship To: SMITH POULTRY FARM 6373 BATES PIKE SE CLEVELAND, TN 37323-	Grower: GOLD KIST		
	Sample Number	1	Date Submitted: 6/13/2007
	Lab Number:	75877	Report Date: 6/15/2007
	Type:	LITTER	

	Percent (%)	Pounds per Ton
Nitrogen – Total	4.01	80.2
P2O5 – Total	3.24	64.8
K2O – Total	2.9	58

Moisture	8.62	%
----------	------	---

Results Reported On: W=WET(AS RECEIVED)BASIS

Remarks

This document may be reproduced only in its entirety. Waters Agricultural Laboratories has no control over the manner in which samples are taken, therefore, analysis is based solely on the sample as received. Lab liability is limited to the fee assessed on the referenced sample.

SOIL TEST REPORT

EDSEL SMITH
6373 BATES PIKE SE
CLEVELAND, TN 37323

Deborah K. Joines
Manager
Soil, Plant and Pest Center
5201 Marchant Drive
Nashville, TN 37211-5112
(615) 832-5850
soilplantpestcenter@utk.edu

Date Tested: 8/30/2007

County: Bradley

Lab Number: 320071

Monthly SOURCE RESULTS RATINGS

POPE JOHN

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	B Boron	Na Sodium
1	6.4		120+ V	320+ V	1280+ S	64+ S						

Organic Matter %	Soluble Salts PPM ⁺⁺
------------------------	---------------------------------------

RECOMMENDATIONS

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**Sample
Number**

1 Cool Season Grass Pasture b. Maintenance

 $N/P_2O_5/K_2O$

Nitrogen/Phosphate/Potash: 60-120 / 0 / 0 pounds per acre

Limestone: Lime is not recommended at this time

Apply recommended amounts of phosphate and polish in one application anytime during the year. Apply 60 pounds of nitrogen per acre August 15 to September 15 and from March 1 to March 30. If additional growth is only needed during one season, apply nitrogen for that season only. If fescue is stockpiled in the fall, apply 60 pounds of N per acre August 15 to September 15.

County: Bradley

Lab Number: 320072

MEHLICH-1 SOIL TEST RESULTS AND RATINGS

(Pounds per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	B Boron	Na Sodium
2	6.3		120+ V	320+ V	1280+ S	64+ S						

Organic Matter %	Soluble Salts PPM ¹
------------------------	--------------------------------------

Downloaded from <http://ajphaphysocpharm.sagepub.com/>

**NOTICES
OF INTENT,
WAIVERS
AND
AGREEMENTS**

Addendum to Nutrient Management Plan:

By my signature below, I affirm that I have read, understand, and will comply with the following stipulations from Tennessee's CAFO rule (1200-4-5-.14) that apply to my CAFO operation.

- 1) All clean water (including rainfall) is diverted, as appropriate, from the production area.
- 2) All animals in confinement are prevented from coming in direct contact with waters of the state.
- 3) All chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants.
- 4) All sampling of soil and manure/litter is conducted according to protocols developed by UT Extension.
- 5) All records outlined in 1200-4-5-.14(16)d-f will be maintained and available on-site.
- 6) Any confinement buildings, waste/wastewater handling or treatment systems, lagoons, holding ponds, and any other agricultural waste containment/treatment structures constructed after April 13, 2006 are or will be located in accordance with NRCS Conservation Practice Standard 313.
- 7) Drystacks of manure or stockpiles of litter are always kept covered under roof or tarps.
- 8) An *Annual Report* will be written for my operation and submitted between January 1 and February 15 of each year. It will include all information required by rule [1200-4-5-.14(16)g].


Signature of CAFO Operator:

10-27-20
Date:

** Required by TDEC.

Agreement for Removal of Litter, Manure and/or Process Wastewater from an AFO

(Based on Appendix A of: TDEC Division of Water Pollution Control, Chapter 1200-4-5 Permit Effluent Limitations and Standards, July 2004).

The conditions listed below help to protect water quality. These conditions apply to litter, manure and/or process wastewater removed from an AFO. The material covered by this agreement was removed on

_____ from the facility owned by _____, located at

_____.

- A. The litter, manure and/or process wastewater must be managed to ensure there is no discharge of litter, manure and/or process wastewater to surface or ground water.
- B. When removed from the facility, litter, manure and/or process wastewater should be applied directly to the field or stockpiled and covered with plastic or stored in a building.
- C. Litter, manure and/or process wastewater must not be stockpiled near streams, sinkholes or wells.
- D. Fields receiving litter, manure and/or process wastewater should be soil tested at least every two or three years.
- E. A litter, manure and/or process wastewater nutrient analysis should be used to determine application rates for various crops.
- F. Calibrate spreading equipment and apply litter, manure and/or process wastewater uniformly.
- G. Apply no more nitrogen than can be used by the crop.
- H. A buffer zone is recommended between the application sites and adjacent streams, lakes, ponds, sinkholes and wells.
- I. Do not apply litter, manure and/or process wastewater when the ground is frozen, or on steep slopes subject to flooding, erosion or rapid runoff.
- J. Cover vehicles hauling litter, manure and/or process wastewater on public roads.
- K. Keep records of locations where litter, manure and/or process wastewater will be used as a fertilizer.

I, _____ am the person receiving litter, manure and/or process
(name) wastewater and I understand the conditions listed above.

(signature)

(date)

(address)

(phone)

9. NUTRIENT BUDGET CALCULATOR OUTPUT

NUTRIENT BUDGET CALCULATOR OUTPUT

Farm Name: Edsel Smith
 Date: October 9, 2007
 Prepared By: C. Dobbs
 (Version 10.0, July 2004)

Calculation weight for poultry mortality

(Enter Values in Yellow Boxes - Calculated Answers appear in Blue Boxes)

Number =	159,000	No.	Number of Birds in Flock
M =	3.0%	Percent	Anticipated mortality of flock
T =	42	Days	Total Life of Flock
W _b =	7	lbs.	Weight of Birds near maturity

Weight of Daily Loss [W_t] = Number * [(M/T) * W_b]

W_t = 795 lbs./day

Calculation of composter volume

(Enter Values in Yellow Boxes - Calculated Answers appear in Blue Boxes)

Allow 2.5 cubic feet of composter volume per pound of dead weight in each stage:

V₁ = V₂ = 2.5 * W_t = Volume in each stage

V₁ = 1,988 ft³ Stage 1 Volume

Number of Composter Bins:

h =	5.0	feet	height of bin (4 - 5 feet)
d =	6	feet	depth of bin (5 - 6 feet)
w =	7.25	feet	width of bin (7'3" - 10 feet)

V_b = individual bin volume = h*d*w

V _b =	217.5	ft ³	individual bin volume
No. of Bins =	9.1	Each	number of bins (V ₁ /V _b)
No. of Bins =	10	Each	number of bins - rounded up to nearest whole #)

Stage 2: V₂ equal to or greater than V₁. Stage 2 can be an equal number of bins or one larger bin.

Remarks: Landowner has an existing composter.

Farm Name: Edsel Smith
 Date: October 9, 2007
 Prepared By: C. Dobbs
 (Version 10.0, July 2004)

Calculation of volume of poultry litter to be stored

(Enter Values in Yellow Boxes - Calculated Answers appear in Blue Boxes)

Number =	<div>159,000</div>	No.	Number of Birds in Flock
Flocks =	<div>1</div>	No.	Number of Flocks per Storage Period (see table to right)
Litter =	<div>2.4</div>	lbs.	Pounds of Litter per Bird per flock
Density =	<div>30</div>	lbs./ft ³	Density Factor

Manure Volume = (Number * Flocks * Litter) / Density

Volume =

12,720

 ft³

Calculation of storage building area and length

(Enter Values in Yellow Boxes - Calculated Answers appear in Blue Boxes)

W =	<div>49</div>	feet	Inside Width of Building
h _p =	<div>7.0</div>	feet	Height of manure/litter pile in center (7.0 feet)
h _w =	<div>4.17</div>	feet	Height of wall (4 feet 10 inches)
Open =	<div>1</div>	No.	Number of Open ends
Post =	<div>8</div>	feet	Spacing between posts

Area [A] = (h_w * W) + [(h_p - h_w) * 0.5 * W]

Nominal Length [L] = (Volume / Area)

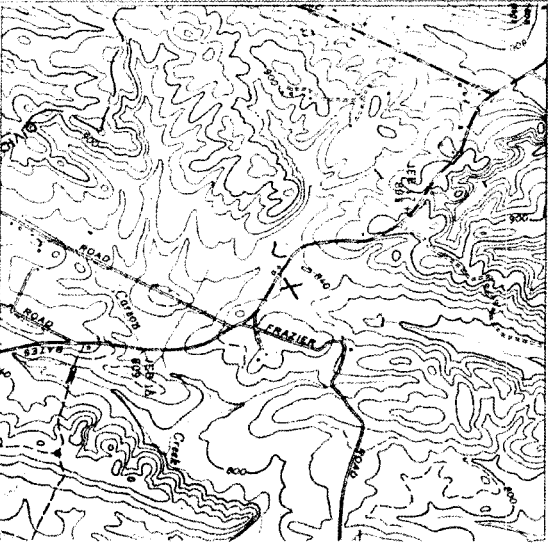
Total Length of Wall [L_t] = L + L_o

A =	<div>274</div>	ft ²	Cross sectional area of pile
L =	<div>46</div>	feet	Nominal Length
L _o =	<div>4</div>	feet	4.0 feet x # of open ends
L _t =	<div>50</div>	feet	Total Length of wall
L _{rnd} =	<div>56</div>	feet	Rounded Total Wall Length to nearest Post Spacing
Vol _{act} =	<div>14248</div>	ft ³	Actual Volume of Storage

Remarks: The 40 X40 will store 7,848 ft³, and the 25 X 50 will Store 5,754 ft³, for a total storage capacity of 13,602 ft³. The two buildings will store one complete clean out or two decades.

COMPOSTER BUILDING PLANS AND SPECIFICATIONS

Land Owner: Mr. Edsel Smith
Bradley County, Tennessee
USDA Soil Conservation Service



WATER SEITZ
DOCTORS

	<u>DESCRIPTION</u>
1	COVER SHEET
2	PLAN
3	SIDE AND END VIEWS
4	SECTION A-A AND DETAILS
5	SECTION B-B AND DETAILS

VICINITY MAP
FELKER QUAD.

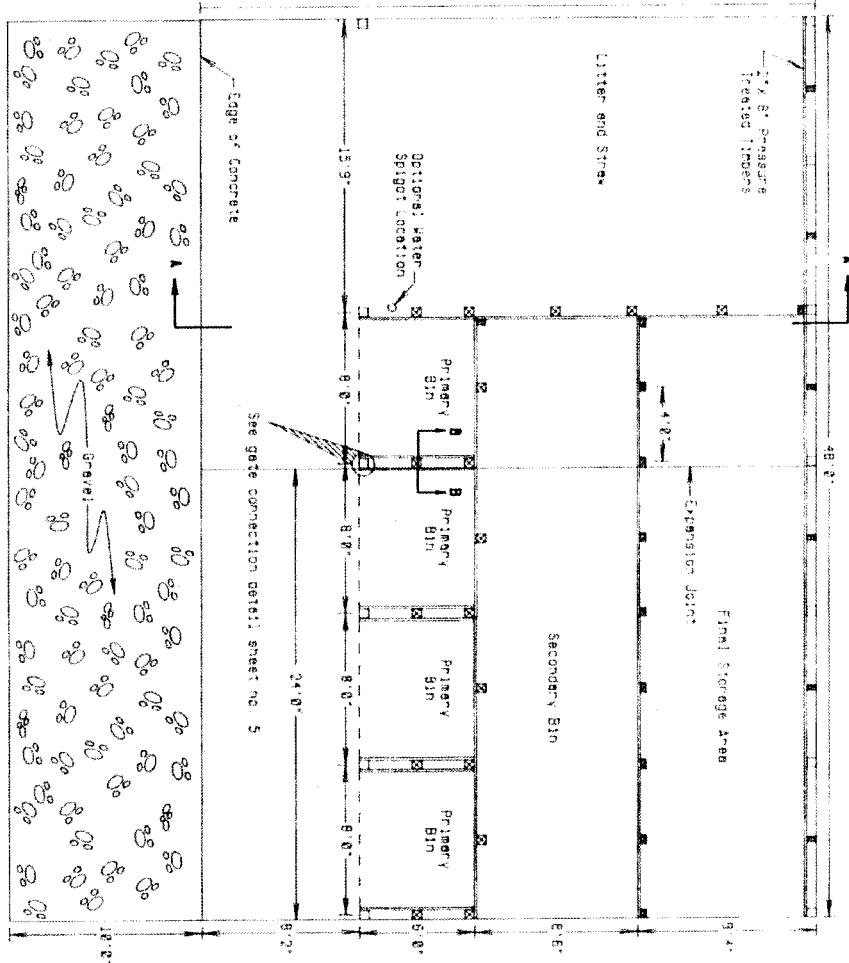
62
2
4-2
5
1
2

APPROVED BY

FILE

DATE

SWITH2



PLAN

Assured North

LEGEND

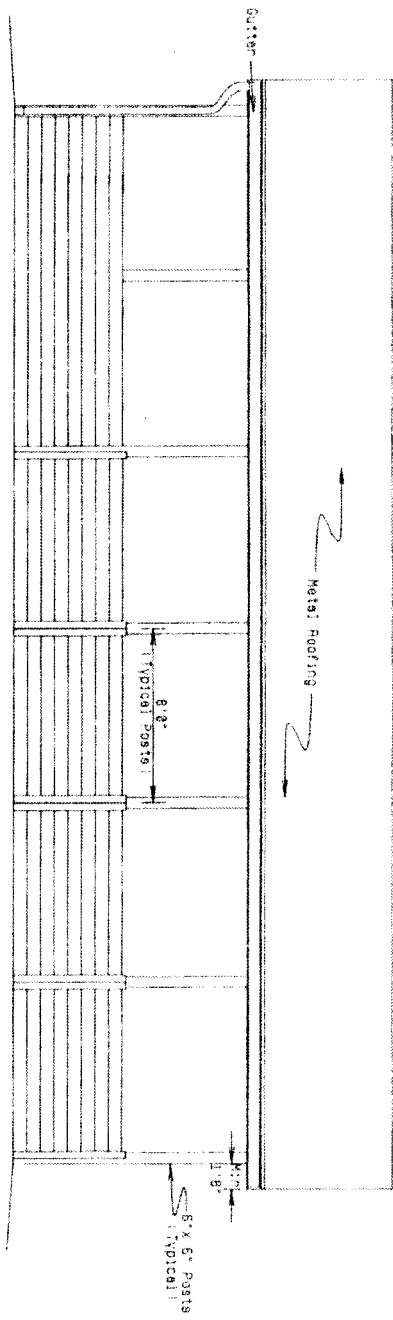
- 6' x 6' Pressure Treated Roof Post
- 4' x 6' Pressure Treated Wall Post
- ▤ 6' x 6' Pressure Treated Wall Post
- Approximate 2' x 8' Timber Sate

NOTES

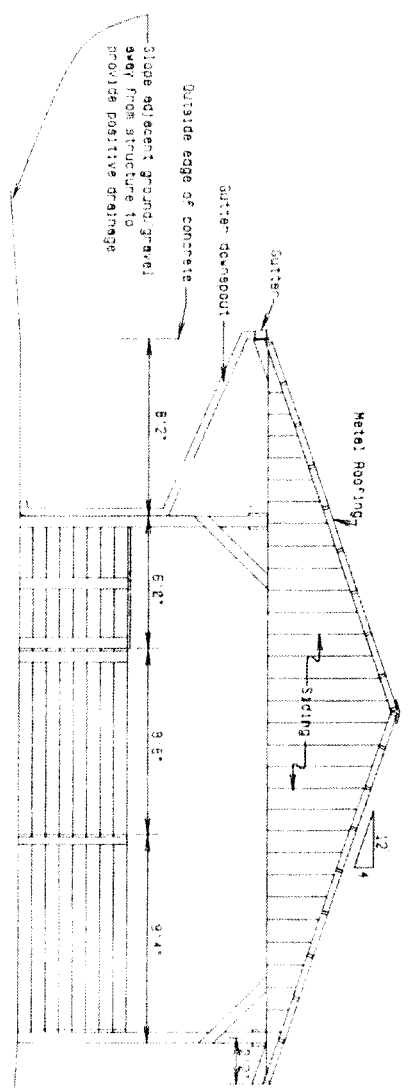
1. For side and end views see sheet no. 3
2. For section A-A see sheet no. 4
3. For section B-B see sheet no. 5
4. All timber shall be pressure treated.
5. Optional: Enclosure of west end of building for protection of litter end street.
6. A water source shall be made available.
7. For open span of 15' 9" see girder (top plate detail) sheet no. 5



POULTRY COMPOSTING FACILITY	
ERSEL SMITH	
BRADLEY COUNTY, TENNESSEE	
PLAN	
U.S. DEPARTMENT OF AGRICULTURE	
SOIL CONSERVATION SERVICE	
Project No.	37778
Date of Preparation	5/21/78
Drawn by	SWITH2
Checked by	
Scale	1" = 10'-0"



SIDE VIEW

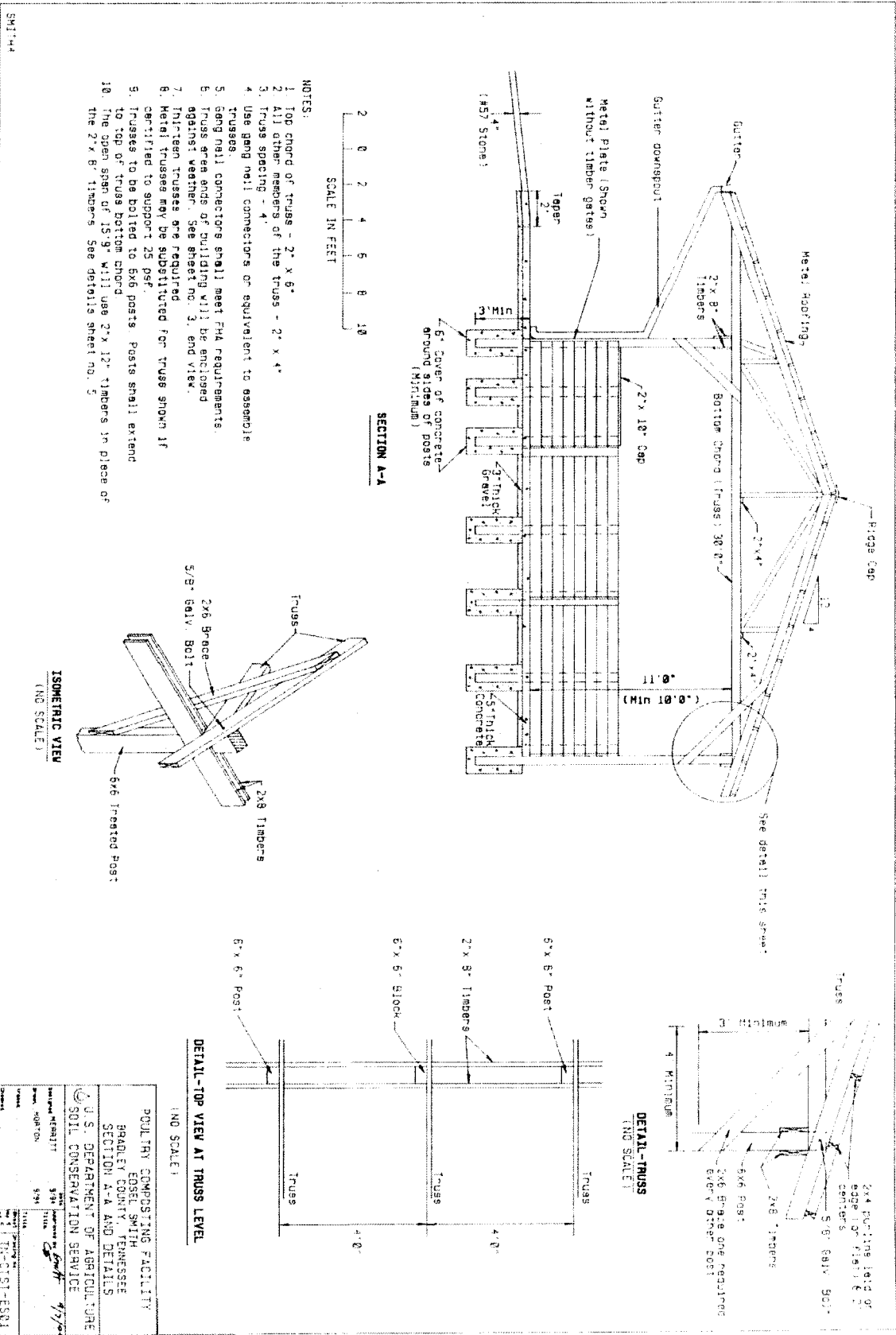


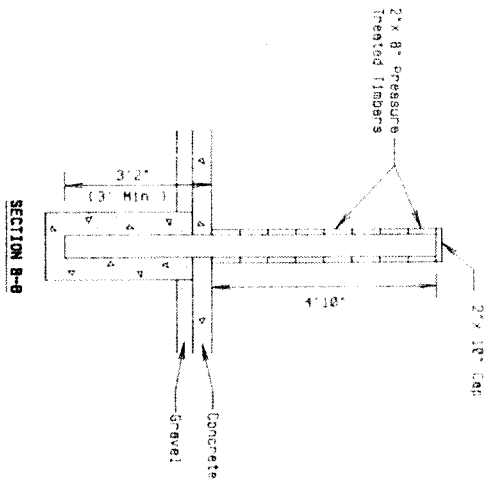
END VIEW

- NOTES
1. Gutter shall not outlet in work area
 2. For post placement and sizes, see sheet No. 2
 3. All primary bps are shown with gate timbers installed.

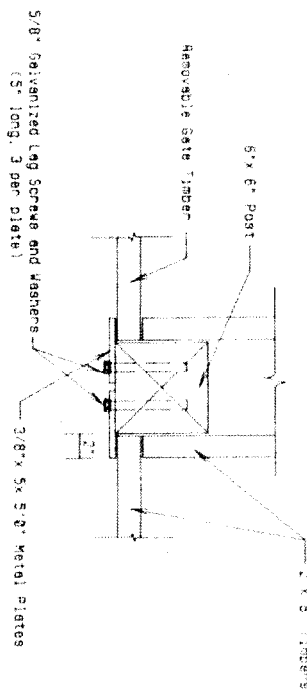


COUNTY COMPOSTING FACILITY	
ESSEX COUNTY, TENNESSEE	
SIDE AND END VIEWS	
U.S. DEPARTMENT OF AGRICULTURE	
SOIL CONSERVATION SERVICE	
PROJECT NO. 100-100-100	DATE 10/1/70
BY [Signature]	FOR [Signature]
CHECKED BY [Signature]	APPROVED BY [Signature]



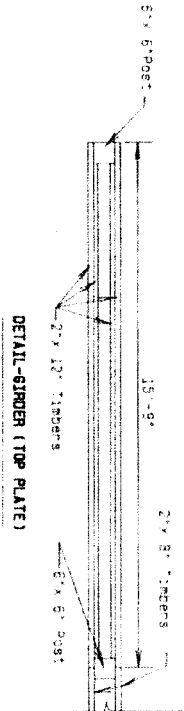


SECTION B-B

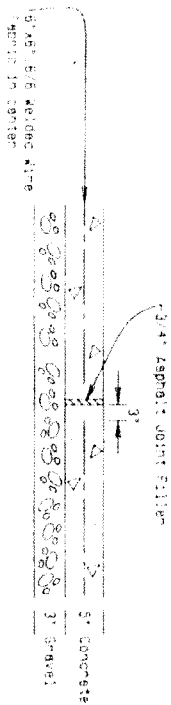


DETAIL-SATE CONNECTION

- Notes:
1. Location of expansion joints shown sheet no. 2



DETAIL-SIDE (TOP PLATE)



DETAIL-FLOOR AND EXPANSION JOINT

NOT TO SCALE

POOL RT CONSTRUCTION DETAIL

BRADLEY COUNTY, MISSISSIPPI

SECTION B-B AND DETAILS

U.S. DEPARTMENT OF AGRICULTURE

WATER CONSERVATION SERVICE

DATE: 5/14/1974

BY: [Signature]

FOR: [Signature]

PROJECT: [Signature]

SCALE: 1/4" = 1'-0"

NO. 1

